

WHAT IS CLAIMED IS:

1. A hydraulic pressure control apparatus for an automatic transmission for a vehicle, comprising:

5 a plurality of hydraulic friction engaging devices which are selectively operated to selectively establish a speed of the automatic transmission;

a plurality of electromagnetic control valve devices which change a combination of the plurality of hydraulic friction engaging devices being operated so as to selectively establish a first predetermined speed and a second predetermined speed;

10 a driving state switching valve switched by an operation by a driver, which switches a driving state of the automatic transmission by supplying a hydraulic fluid fed under pressure from a hydraulic pump to a predetermined hydraulic fluid path; and

15 a switching valve which is switched from a first position to a second position according to a change in a position of the driving state switching valve when the plurality of electromagnetic control valve devices stop working, the switching valve operating the hydraulic friction engaging devices in a combination to establish the first predetermined speed when in the first position, and in a combination to establish the second predetermined speed when in the second position.

2. The apparatus according to claim 1, wherein the switching valve is switched from the first position to the second position when hydraulic pressure for driving the vehicle forward stops being output due to a change in the position of the driving state switching valve.

3. The apparatus according to claim 1, wherein the switching valve is switched from the first position to the second position when hydraulic pressure for driving the vehicle in reverse is output due to a change in the position of the driving state switching valve.

4. The apparatus according to claim 1, wherein the hydraulic friction engaging devices include a first clutch, a second clutch, a first brake, a second brake, and a third brake; the first predetermined speed is established by engaging the second

clutch and the third brake in combination, and the second predetermined speed is established by engaging the first clutch and the third brake in combination; the plurality of electromagnetic control valve devices include a normally closed type first clutch control valve, a normally open type second clutch control valve, a normally closed type first brake control valve, a normally closed type second brake control valve, and a normally open type third brake control valve; the driving state switching valve prohibits output of hydraulic pressure when a shift lever is shifted to an N position and allows the output of a D range hydraulic pressure when the shift lever is shifted to a D position; and the switching valve switches the output of the D range hydraulic pressure so as to engage the second clutch when in the first position, and so as to engage the first clutch when in the second position.

5. A hydraulic pressure control apparatus for an automatic transmission for a vehicle, comprising:

a plurality of hydraulic friction engaging devices which are selectively operated to selectively establish a speed of the automatic transmission;

a plurality of electromagnetic control valve devices which change a combination of the plurality of hydraulic friction engaging devices being operated so as to selectively establish a first predetermined speed and a second predetermined speed by;

a driving state switching valve which switches a driving state of the automatic transmission by supplying an hydraulic fluid fed under pressure from a hydraulic pump by operation of an engine to a predetermined hydraulic fluid path; and

a switching valve which is switched from a first position to a second position according to a change in an operating state of the hydraulic pump when the plurality of electromagnetic control valve devices stop working, the switching valve operating the hydraulic friction engaging devices in a combination to establish the first predetermined speed when in the first position, and in a combination to establish the second predetermined speed when in the second position.

30

6. The apparatus according to claim 5, wherein the switching valve is switched from the first position to the second position when a line hydraulic pressure stops being output due to operation of the hydraulic pump stopping.

7. The apparatus according to claim 5, wherein the switching valve is switched from the first position to the second position according to a change in the position of the driving state switching valve.

5 8. The apparatus according to claim 5, wherein the hydraulic friction engaging devices include a first clutch, a second clutch, a first brake, a second brake, and a third brake; the first predetermined speed is established by engaging the second clutch and the third brake in combination, and the second predetermined speed is established by engaging the first clutch and the third brake in combination; the
10 plurality of electromagnetic control valve devices include a normally closed type first clutch control valve, a normally open type second clutch control valve, a normally closed type first brake control valve, a normally closed type second brake control valve, and a normally open type third brake control valve; the driving state switching valve prohibits output of hydraulic pressure when a shift lever is shifted to an N
15 position and allows the output of a D range hydraulic pressure when the shift lever is shifted to a D position; and the switching valve switches the output of the D range hydraulic pressure so as to engage the second clutch when in the first position, and so as to engage the first clutch when in the second position.

20 9. A hydraulic pressure control method for an automatic transmission for a vehicle, including a plurality of hydraulic friction engaging devices which are selectively operated to selectively establish a speed of the automatic transmission, a plurality of electromagnetic control valve devices which change a combination of the plurality of hydraulic friction engaging devices being operated so as to selectively
25 establish a first predetermined speed and a second predetermined speed, a driving state switching valve switched by an operation by a driver, which switches a driving state of the automatic transmission by supplying a hydraulic fluid fed under pressure from a hydraulic pump to a predetermined hydraulic fluid path, and a switching valve which operates the hydraulic friction engaging devices, comprising the steps of:
30 switching the switching valve from a first position to a second position according to a change in a position of the driving state switching valve when the plurality of electromagnetic control valve devices stop working; and

operating the hydraulic friction engaging devices in a combination to establish the first predetermined speed when in the first position, and in a combination to establish the second predetermined speed when in the second position.

5 10. The method according to claim 9, wherein the switching valve is switched from the first position to the second position when hydraulic pressure for driving the vehicle forward stops being output due to a change in the position of the driving state switching valve.

10 11. The apparatus according to claim 9, wherein the switching valve is switched from the first position to the second position when hydraulic pressure for driving the vehicle in reverse is output due to a change in the position of the driving state switching valve.

15 12. The apparatus according to claim 9, wherein the hydraulic friction engaging devices include a first clutch, a second clutch, a first brake, a second brake, and a third brake; the first predetermined speed is established by engaging the second clutch and the third brake in combination, and the second predetermined speed is established by engaging the first clutch and the third brake in combination; the
20 plurality of electromagnetic control valve devices include a normally closed type first clutch control valve, a normally open type second clutch control valve, a normally closed type first brake control valve, a normally closed type second brake control valve, and a normally open type third brake control valve; the driving state switching valve prohibits output of hydraulic pressure when a shift lever is shifted to an N
25 position and allows the output of a D range hydraulic pressure when the shift lever is shifted to a D position; and the switching valve switches the output of the D range hydraulic pressure so as to engage the second clutch when in the first position, and so as to engage the first clutch when in the second position.

30 13. A hydraulic pressure control method for an automatic transmission for a vehicle, including a plurality of hydraulic friction engaging devices which are selectively operated to selectively establish a speed of the automatic transmission, a plurality of electromagnetic control valve devices which change a combination of the plurality of hydraulic friction engaging devices being operated so as to selectively

establish a first predetermined speed and a second predetermined speed by, a driving state switching valve which switches a driving state of the automatic transmission by supplying an hydraulic fluid fed under pressure from a hydraulic pump by operation of an engine to a predetermined hydraulic fluid path, and a switching valve which
5 operates the hydraulic friction engaging devices, comprising the steps of:

switching the switching valve from a first position to a second position according to a change in an operating state of the hydraulic pump when the plurality of electromagnetic control valve devices stop working; and

operating the hydraulic friction engaging devices in a combination to establish
10 the first predetermined speed when in the first position, and in a combination to establish the second predetermined speed when in the second position.

14. The apparatus according to claim 13, wherein the switching valve is switched from the first position to the second position when a line hydraulic pressure
15 stops being output due to operation of the hydraulic pump stopping.

15. The apparatus according to claim 13, wherein the switching valve is switched from the first position to the second position according to a change in the position of the driving state switching valve.
20

16. The apparatus according to claim 13, wherein the hydraulic friction engaging devices include a first clutch, a second clutch, a first brake, a second brake, and a third brake; the first predetermined speed is established by engaging the second clutch and the third brake in combination, and the second predetermined speed is
25 established by engaging the first clutch and the third brake in combination; the plurality of electromagnetic control valve devices include a normally closed type first clutch control valve, a normally open type second clutch control valve, a normally closed type first brake control valve, a normally closed type second brake control valve, and a normally open type third brake control valve; the driving state switching
30 valve prohibits output of hydraulic pressure when a shift lever is shifted to an N position and allows the output of a D range hydraulic pressure when the shift lever is shifted to a D position; and the switching valve switches the output of the D range hydraulic pressure so as to engage the second clutch when in the first position, and so as to engage the first clutch when in the second position.